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Quality Pentagon in Research: An Approach for Multiple Cycles of Knowledge Construction

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Abstract

Objective: This study aims to shed light on the quality attributes of scientific research—gap, relevance, innovation, contribution, and impact—proposed by Frezatti (2020) in a REPeC editorial and to explore them through a project developed by participants of a research group. This objective addresses the issue of article and project rejection, which often originates from weaknesses at the conception stage, compromising execution and hindering necessary adjustments for publication.

Method: A theoretical-methodological approach was adopted to discuss five essential elements for developing a research project, referred to as the quality pentagon. These interdependent elements are applied throughout the entire research cycle, from conception to execution and publication.

Results: The proposed approach is expected to enhance the design and execution of research with greater intrinsic quality, particularly in the business field, thereby facilitating evaluation and acceptance in academic journals.

Contributions: This study's innovation lies in examining the interaction between the elements of the quality pentagon, a topic rarely explored in the literature. By addressing this interrelationship, we provide a tool to improve the planning and development of research, strengthen authors' arguments, and offer benefits to referees, editors, and advisors.

Keywords: Gap; Relevance; Contribution; Innovation; Impact; Quality pentagon; Intrinsic quality.

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1 Introduction

An action movie depicted an agent relentlessly pursuing a terrorist, always arriving too late and growing increasingly frustrated. At a critical moment, the agent's mentor advised: "*You need to go back to where you started and where you lost your way*!" This advice resonates with the challenges faced by some researchers. The pursuit of sophistication and innovation is often integral to a researcher's development. However, in this pursuit, substantial material has been produced, and significant efforts have been invested in inadequately planned projects—projects that frequently have uncertain outcomes and, in many cases, yield no tangible results. Losing one's way in research can signify a failure to maintain a consistent focus, ultimately compromising the quality of the research and the articles produced in a specific field. Such experiences are familiar to all of us in the academic community at some point in our careers.

The constitutive aspects of scientific research quality discussed in this theoretical-methodological article (Corley & Gioia, 2011; Godoi *et al.*, 2006), referred to as the quality pentagon, include **gap, relevance, innovation, contribution,** and **impact** (Frezatti, 2020). These elements are contextually anchored in the research problem, research question, theoretical framework, and the selected methodological approach.

In some cases, a problem that initially presents an opportunity for innovation within a field of knowledge when the research is designed may lose its relevance over time, particularly with the publication of new articles. In other instances, identifying a **gap** in an overly simplified or trivial manner (Alvesson & Sandberg, 2011) may later reveal that the gap either does not exist or lacks sufficient justification, thereby undermining the research's potential **contributions** (Alvesson & Sandberg, 2011) and overall **impact**. Authors are often advised to adjust their problem's focus based on its perceived **relevance** (Nicolai & Seidl, 2010), especially when preparing a manuscript for publication. Increasingly, researchers are being questioned about the societal **impact** of their work, particularly in the business field, where this discussion requires thoughtful and comprehensive reflection (Wickert *et al.*, 2021; Costa *et al.*, 2022). While the scenarios described above highlight potential challenges, they also offer opportunities for positive outcomes. When the elements of the quality pentagon are viewed as scaffolding that supports the development and communication of research, they can effectively guide the process. In this context, it is essential to acknowledge that opportunities may emerge and fade throughout the research journey.

But what are the main obstacles to the proper use of these elements? First, the definition of each attribute that constitutes the quality of academic research—including its concepts, boundaries, and interrelations—is often unclear and scattered across various stakeholders, such as journals, funding agencies, and universities. Additionally, the application of these elements can be perceived as static, when in fact, they have the potential to be dynamic. Their effective use involves enhancing a research proposal through practical reflection, which is essential for their operationalization.

In this context, this theoretical-methodological study seeks to shed light on the quality attributes of scientific research and explore them through a research project developed by members of the research group responsible for this discussion. Scientific research should provide researchers with well-founded arguments to structure their projects and articles—arguments that are persuasive not only for themselves but also for third parties, such as referees and readers. By identifying and analyzing quality attributes based on editorials and scientific articles in the business field, we also examine their interrelations. Furthermore, we demonstrate that when at least one element of the pentagon is insufficiently developed, the potential of the other elements is inevitably compromised, thereby diminishing the overall quality of the research. Ultimately, the discussion surrounding the quality pentagon offers a comprehensive and integrated perspective on the attributes that should guide the design and execution of research in the business field.

2 Research Framework and Construct

The identification and validation of the concepts necessary to characterize each of the five elements were grounded in methodology books that outline the quality attributes of scientific research, the websites of Brazilian and international journals that specify quality criteria and editorial policies, articles discussing the quality of research projects, scientific research in the business field, guidelines from research funding agencies, and our experience as researchers.

The delimitation of a topic marks the starting point of a research project (Boaventura, 2004). Once the thematic orientation of the investigation is defined, it becomes essential to identify the problem that allows for the development of questions or hypotheses. The process of formulating questions related to the topic to be addressed in research is referred to as problematization (Gil, 2010), which involves presenting a dilemma associated with the thematic line under study. A problem represents a challenge that requires investigation (Lakatos & Marconi, 2010), a situation that prompts the formulation of one or more questions (Klein *et al*., 2015). From this foundation, the application of the five elements of the quality pentagon becomes crucial.

Furthermore, the field of applied social sciences is characterized by (i) its multidisciplinarity, (ii) its influence from other areas of knowledge, such as sociology, psychology, law, and economics, and (iii) its connection between academic and practical environments (Corley & Gioia, 2011). The authors highlight the complexity of addressing theoretical contributions in this field, a reflection that can also be extended to defining a research problem and understanding and applying the other elements of the quality pentagon. This is particularly relevant because the field of applied social sciences, specifically the business domain, encompasses diverse theoretical foundations and perspectives, as well as multiple voices and audiences. These factors increase the complexity and potential confusion surrounding the interrelationship among these research elements, underscoring the importance of integrating them to achieve intrinsic research quality.

2.1 Gap

Identifying a gap, or at least acknowledging the need for one, has been a common concern in accounting research. While many researchers explicitly state the gap they intend to address or develop, merely recognizing a gap does not necessarily imply that the concept underlying the term is well established among researchers in the field. On the contrary, much of what has been published resembles the notion of an unsuccessful agent chasing a terrorist: a gap is presented, but the critical question remains—does it truly constitute a gap?

Identifying one or more gaps is a fundamental step in developing research questions (Sandberg & Alvesson, 2011). Consequently, many researchers strive to identify seldom-studied or even unexplored areas in the literature, using this as an argument to claim the existence of a research gap. However, a misinterpretation appears to have taken root in accounting research—namely, that the mere absence of studies on a specific area, sector, topic, or related subject necessarily constitutes a gap worthy of investigation. Naturally, the identification of gaps can vary significantly, ranging from incremental extensions to the introduction of more substantial contributions (Sandberg & Alvesson, 2011). In essence, identifying a genuine gap requires conducting thorough and consistent research at both local and international levels.

Based on a literature review, Sandberg and Alvesson (2011) identified that research gaps are generally derived from three main sources: (i) confusion within the existing literature, where contradictory evidence on a subject creates a gap to be addressed; (ii) the identification of a topic that lacks quality research, encompassing areas that are underexplored, neglected, or lacking empirical support; and (iii) the discovery of a new application within the existing literature.

The three sources promoting research development, as identified by Sandberg and Alvesson (2011), suggest that a **research gap** can be defined as a lack of consensus from a theoretical or literary perspective. In other words, a gap represents an opportunity arising from the collection of elements whose debate is either ongoing or yet to begin. To effectively specify a gap, it is essential to clarify which phenomena and contexts the literature has already addressed and, from there, identify the existing blind spots. However, this process is often undermined by a superficial presentation of what has already been studied, which impairs understanding and hinders the assessment of the gap's potential and scope. Along these lines, Paré *et al.* (2023) emphasize that identifying a gap involves highlighting areas where understanding is incomplete, confusing, or contradictory while pointing toward possible research directions. Importantly, they also stress that beyond identifying a gap, it is crucial to explain why it merits exploration (Paré *et al.*, 2023).

In this context, the importance of addressing bold ideas and adopting less conventional approaches to tackle significant unresolved problems (Colquitt & George, 2011) may offer a promising pathway for exploring research gaps. This perspective broadens the discussion by incorporating an empirical dimension, recognizing that the field—like economic and business activities—holds potential relevance for advancing research in accounting. Consequently, a research gap encompasses not only a lack of consensus from theoretical or literary perspectives but also from empirical standpoints.

Another critical aspect of identifying research opportunities lies in the structure of researchers' relationships. Burt (2004) suggests that individuals situated near "structural holes" within a social structure are more likely to generate good ideas. This is because behaviors and opinions tend to be more homogeneous within groups than between them. Individuals who navigate across different groups are exposed to diverse ways of thinking and behaving, which broadens their ability to select and synthesize ideas. Structural gaps, therefore, facilitate the identification and synthesis of promising ideas. The designation of an idea as "good" depends on its empirical validation, but generally, an idea is considered good when it is valued and praised by others (Burt, 2004).

Some gaps explicitly presented in articles are often cited as reasons for rejection by journal editors (Falaster *et al.*, 2016), either because they are superficially characterized without sufficient depth or because they focus on an unjustified research gap that fails to advance the field under study. For instance, an empirical gap (e.g., studies involving Brazilian companies) must be grounded in the specificities of its context and, more importantly, demonstrate how it can contribute to the generation of new knowledge within the existing literature.

Thus, a gap emerges from the defined research problem and is established through a process that includes: (i) identifying key terms associated with the problem; (ii) conducting a literature review guided by these terms to gather relevant publications and identify inconsistencies or deficiencies in quality; (iii) exploring studies cited in the relevant publications identified in step (ii); and (iv) pinpointing issues related to the problem that remain unaddressed by the current literature. Consequently, identifying and, equally importantly, effectively communicating a research gap necessitates a critical and selective literature review to encompass the most pertinent works covering the topic under study. This search must remain ongoing, as research fields are dynamic and evolve over time. In this regard, not every type of literature review is sufficient to address the demands of identifying a gap.

> **Essence:** a gap represents something unknown or incompletely understood about a phenomenon that is absent from the available literature within a given field, both nationally and internationally.

2.2 Relevance

Relevance must be embedded in the definition of the research problem, but it can also be influenced by the research gap and shaped by the target audience that the study aims to serve by generating new knowledge. This may involve expanding the scope of problem treatment, such as the intensity of use of something already known but requiring investigation in a specific context. The following discussion outlines key pillars of relevance in business research: concepts, users, and scope.

Although relevance is a requirement for most journals in the business field, its definition is not straightforward, as it holds distinct and sometimes contradictory meanings across different contexts (Nicolai & Seidl, 2010). The Oxford Dictionary (n.d.) offers a generic definition of relevance, describing it as "the fact of being valuable and useful to people in their lives and work" and "a close connection with the subject or situation being discussed."

This generic definition can be applied to research relevance, but it is crucial to consider aspects such as: what is valuable and useful for different research users? Relevance needs to be contextualized: for whom and in what context or time? In line with this discussion, Nicolai and Seidl (2010, p. 1278) argue that "the more we realize that 'relevance' is a problem with many facets and, as such, closely related to the social dynamics of science, the more it becomes apparent that the solutions are not as obvious as many contributions to the relevance debate seem to imply."

Many studies on the relevance of scientific research in business are based on the understanding held by managers in organizations. In this sense, they reflect to what extent research allows for generating insights valuable to professionals (Vermeulen, 2007). McGahan (2007) proposes five ways of translating the relevance of research for professionals: (1) counterintuitive insights regarding prevailing paradigms, (2) transformation of business practices, (3) practices that violate management principles, (4) unique situations that benefit from a conceptual perspective, and (5) problems or phenomena that allow for new perspectives on research and practice.

Nicolai and Seidl (2010) propose a taxonomy of relevance forms: conceptual, instrumental, and legitimizing. Conceptual relevance reflects the extent to which scientific knowledge alters managers' understanding of decision-making situations. It encompasses new concepts and metaphors communicated to professionals (linguistic constructs), the discovery of decision alternatives, and relationships that merit exploration in the context of a problem. McGahan's (2007) relevance forms align with the perspective of conceptual relevance in Nicolai and Seidl's (2010) taxonomy. Instrumental relevance involves scientific knowledge influencing specific decisions, including frameworks for systematically visualizing situations (e.g., models, graphs), decision-support guidance, and future predictions. In essence, it reflects the applicability of scientific research in practical contexts. Legitimizing relevance highlights how knowledge can legitimize or enforce actions in practice, given its association with the prestige of researchers and their affiliated institutions (Nicolai & Seidl, 2010). Corley and Gioia (2011) stress that research should directly or indirectly address a practice-related problem. However, practical utility should not be conflated with pragmatic utility in the sense of instrumentalization (Corley & Gioia, 2011).

Although several authors argue that business studies should prioritize relevance to professionals, others adopt a broader perspective, focusing on the research user. In this context, Palmer *et al.* (2009) suggest that the meaning of relevance should consider the intended audience of the research. Daft and Lewin (2008) propose two types of relevance—academic and practical—serving distinct groups or sub communities. Research can thus be relevant for generating knowledge and fostering reflection among researchers and academics or for addressing problems and promoting practices within organizations. The authors conclude that, while the practical value of research for managers (as end users) is important, researchers should not focus exclusively on the immediate practical relevance of their work (Daft & Lewin, 2008). Wickert *et al.* (2021) broaden the perspective of research users by including academics, professionals, society, educators, regulators, and politicians. Researchers should recognize that their work might be relevant to one or several of these audiences.

In addition to discussing what can be perceived as relevant from a research perspective, it is important to consider dimensions such as scale, scope, or urgency to make the concept more tangible. The Oxford definition associates relevance with the extent to which a problem or finding is useful to a large number of people or organizations. This perspective aligns with Nicolai and Seidl's (2010) taxonomy of conceptual, instrumental, and legitimizing relevance. The magnitude of relevance varies depending on the context, user, and time.

In summary, this study considers relevance in its broadest sense, encompassing the perception that a problem or finding is valuable and useful to both people and organizations (managers and academics). It is conceptualized in terms of conceptual relevance (learning, reflection, critique, insights) and instrumental relevance (tools, applications, solutions).

Essence: relevance can be defined as the degree of importance, encompassing the value and usefulness that research provides to a community.

2.3 Innovation

Innovation refers to the successful introduction of an idea, practice, or object perceived as new within a given social system. Even if it previously existed in a different form or setting, it can still be characterized as innovative as long as it is perceived as new by a group or within a location (Rogers, 2003).

Miles *et al.* (2011) identify three main justifications for innovation: theoretical, moral/ethical, and practical reasons. Moral or ethical reasons are tied to the desire to enhance understanding of the emotional dimensions of a topic to present a holistic perspective, address empowerment and fair participation, foster collaboration, or reduce the risk of harm. Practical reasons stem from incentives or pressures to solve problems that yield direct or indirect economic benefits or other advantages.

Rothwell and Gardiner (1985) argue that innovation is not solely characterized by major breakthroughs, such as radical innovations, but can also occur on a smaller scale, as incremental innovations. In other words, innovation is not a binary concept of presence or absence; rather, it often involves efforts to demonstrate the innovative aspects of research. The potential for **innovation** arises from identifying and addressing a gap related to a specific problem

Innovation in research involves introducing new ideas, methods, approaches, or discoveries that contribute to the evolution of a field of study. Thomas Kuhn (1962) highlights the pivotal role of innovation in scientific revolutions, where it challenges established paradigms with novel theories and methods. Similarly, Popper (1959) supports Kuhn's perspective, emphasizing that innovation occurs when new theories are proposed, tested, and potentially refuted, thereby driving scientific progress.

The demand for innovation in social research methods is widespread (Wiles *et al.,* 2011), driven in part by research funding programs and evolving trends in research reporting (Taylor & Coffey, 2009). Ziman (2000) highlights the role of social interactions among scientists in fostering innovation and underscores the significance of consensus and communication in validating new ideas.

Wiles *et al.* (2011) caution that innovation should not merely serve as a gimmick to garner favorable opinions from referees or funding agencies, nor should it simply respond to fleeting trends. Instead, it must be grounded in genuine efforts to enhance the quality and contributions of research (Taylor & Coffey, 2009). Foster *et al.* (2015) highlight that the selection of a research problem often reflects an inherent tension between adhering to established traditions and embracing the risks of innovation. They note that while innovative research is more likely to achieve significant impact compared to conservative approaches, the potential reward may not always outweigh the risk of failing to publish. To address this tension, the authors advocate for policy interventions aimed at fostering innovation in research.

The risk of not publishing may help explain why much of the innovation in social science research involves adapting existing methods rather than inventing entirely new ones (Wiles *et al.*, 2011). In the same study, Wiles *et al.* (2011) propose a hierarchical categorization of innovation stages in research articles: inception, adaptation, and adoption. Among these, adoption represents the lowest level of innovation.

Scientific research can be considered innovative when it satisfies the following attributes: (a) Originality: The work introduces ideas, methods, or discoveries that are novel within the field (Kuhn, 1962); (b) Significance: The innovation has a substantial impact on the field, altering the understanding or approach to a problem (Popper, 1959); (c) Importance: The contributions address current challenges and possess the potential to pave the way for future research (Rogers, 2003); (d) Validation: New ideas are rigorously tested and validated through experiments or analyses that demonstrate their effectiveness and applicability (Ziman, 2000); (e) Clarity and Complexity: The innovation is communicated clearly and perceived as accessible and practical, facilitating its recognition and application by other researchers (Fagerberg, 2005; Rogers, 2003; Dosi, 1988); and (f) Compatibility: The innovation aligns with the existing values, past experiences, and needs of potential adopters. Innovations that are incompatible with the values and norms of a social system tend to face slower adoption (Rogers, 2003).

Essence: Innovation is the introduction of ideas, methodologies, or discoveries aimed to reduce or eliminate a gap.

2.4 Contribution

The contribution of research has become a central topic of interest and discussion in both academic and practical contexts in recent years. Notable works, such as those by Whetten (1989), Alvesson and Sandberg (2011), Corley and Gioia (2011), Albu and Toader (2012), Corley and Schinoff (2017), and Freitag *et al*. (2019), emphasize the need to reflect on the concept and scope of research contributions and their critical role in advancing knowledge within the applied social sciences.

Rynes (2002, p. 311) states that "The notion of contribution – like many other abstract concepts, such as quality or truth – is somewhat subjective and can only be assessed in the context of each manuscript," highlighting the need for a structured approach to understanding the elements inherent in theoretical contributions. In the business field, there is a notable interest in understanding and applying this concept. For instance, Whetten (1989), in his article for the Academy of Management Review (AMR), addresses this concern by clarifying the expectations of AMR regarding what constitutes a theoretical contribution. Similarly, Corley and Gioia (2011) assert that to be considered for publication in a high-impact journal, an article must present a theoretical contribution, underscoring its status as a fundamental requirement in the academic domain.

Corley and Gioia (2011, p. 12) define theory as "a statement of concepts and their interrelationships that shows how and/or why a phenomenon occurs," emphasizing that theory is grounded in the formal and systematic explanation of a phenomenon. As highlighted in the literature, a theoretical contribution involves a significant advancement in our understanding and explanation of a phenomenon, whether achieved through theoretical or empirical means (Corley & Schinoff, 2016; Corley & Gioia, 2011).

Therefore, this discussion is based on the understanding that research demonstrates a contribution either through an incremental perspective—building on existing theory, such as when the inclusion of a new variable in a model alters the understanding of the phenomenon under study—or through a revealing perspective, which involves proposing a new theory or significantly redefining how a phenomenon is explained. The latter may address issues such as redefining a problem, resolving a paradox, or challenging theoretical assumptions. According to Alvesson and Sandberg (2011), this approach enables the exploration of more "interesting" research, thereby increasing its potential to attract attention and citations in academic publications.

Additionally, the contribution of research necessarily involves its usefulness, meaning its capacity to advance the theoretical foundation and/or provide practical insights and reflections (Whetten, 1989). Usefulness, in this context, encompasses two key dimensions: (i) scientific usefulness, which facilitates the application or replication of theory to further scholarly discussions, and (ii) practical usefulness, which enables the application of research findings to address challenges faced by professionals and organizations (Corley & Gioia, 2011).

As Corley and Gioia (2011) discuss, the contribution of a research project is closely linked to relevance and innovation, as it often emerges as a result of these two attributes, with the research gap serving as its foundation. Relevance emphasizes the usefulness of research for specific users (to whom), while contribution focuses on the knowledge (what) that the research provides to these actors. Furthermore, innovation pertains to the project's design, such as its constructs or methodological approach, whereas contribution offers an *ex-post* perspective on the knowledge added to the existing scientific base.

Corley and Gioia (2011) propose that theoretical contributions should include an element of anticipation, addressing future problems that the theory might explain and/or future needs emerging from the practical field. They refer to this aspect as "prescient theorizing," emphasizing the growing expectation for researchers to consider the broader impacts of their work. This involves reflecting on the relationships between researchers themselves and between researchers and the practical field, thereby enhancing and complementing the originality and usefulness of the research.

It is important to emphasize that, although research with incremental contributions currently receives less attention, particularly in top journals, it remains fundamental within the framework of scientific logic. One of the core aspects of a theory is its ability to be replicated and applied in different contexts, as well as its capacity to address aspects not previously considered by the theoretical model (Corley & Gioia, 2011). Thus, understanding the potential contribution of research and how it is characterized in terms of originality and usefulness for both theoretical and practical applications is essential for addressing a research problem and effectively communicating the study.

Essence: Contribution is the generation of new knowledge that advances the understanding and fosters development within a field.

2.5 Impact

In Brazil, researchers have emphasized the importance of incorporating both rigor and practical relevance into scientific research (Costa *et al*., 2022). For example, Costa *et al.* (2022, p. 829) propose the *Modelo Orientado ao Impacto Societal* [Societal Impact-Oriented Model], which integrates "production based on the merit of the scientific method with the delivery of value and the promotion of positive impacts on society." Research should inspire audiences beyond academia to think and act differently, with the goal of enhancing organizational functioning and the broader organizational environment (Alvesson, 2012).

Apparently, research institutions can offer more effective support for researchers than the methodology literature alone. Some notable examples of this support include:

As proposed by the Australian Research Council (Stratford, 2020), "Research impact is the contribution that research makes to the economy, society, environment or culture, beyond the contribution to academic research." Academic institutions and research widely use the Australian approach.

- "The impact of some research is evident immediately, whereas in other cases, it can take years, or even decades before the true value becomes apparent. There are no simple predictors of potential benefits or outcomes and no single measure of impact." (Oxford University, 2024)

- "Research impact is real change in the real world. There are many different kinds of impact, including attitudinal, awareness, economic, social, political, cultural, and health. It takes hard work and persistence to create an impact from research. Impact is achieved through several steps that include helping relevant audiences to discover, connect with, understand, apply and advocate for research." (Rapple, 2019)
- "We have succeeded when the knowledge generated by our research contributes to, benefits, and influences society, culture, our environment, and the economy. We value the process as well as the outcome since working with partners who use the new knowledge we create informs our research directions and methods." (University of York, 2024).

The Australian Research Council approach was adopted here with specific adjustments to address the demand for operationalization. Within the editorial environment, the term "impact" is largely endogenous, oriented toward the acceptance of articles and journals (Reips & Matzat, 2013; Oliveira & De Andrade Martins, 2019; Corley & Gioia, 2011). In this context, researchers primarily write for other researchers, with the impact factor serving as a measure of this influence. However, the understanding of "impact" within the editorial sphere has gradually broadened, incorporating not only the academic logic of citation and adoption (Tushman & O'Reilly, 2007; Gulati, 2007; Alvesson & Sandberg, 2011) but also the notion of benefit to others, often referred to as practical relevance (Nicolai & Seidl, 2010). Additionally, regulatory agencies have begun to emphasize a broader definition of impact, focusing on societal benefits. This shift has been driven by competition for research funding, particularly in fields where externalization and perceived impact within organizational environments are critical (Daft & Lewin, 2008).

In line with this perspective, Wickert *et al.* (2021) build on and complement the Australian approach by categorizing the types of impact that social scientists are uniquely positioned and responsible for achieving. These impacts extend the scope of stakeholders to include a broader range of actors such as academics, professionals, society, regulators, and educators. **Academic impact** is achieved through innovative and engaging research that focuses on problem- or phenomenon-oriented studies, contributing to the advancement of theoretical knowledge. P**ractical impact** addresses the needs of professionals by developing scientifically validated tools, explaining the practical applications of findings, and aiding in the implementation of research insights to solve real-world problems. **Social impact** occurs when research provides solutions to societal challenges or stimulates debates on pressing social issues. **Political-regulatory impact** is realized when research influences the development of public policies or the standards set by regulatory organizations. Finally, **Educational impact** focuses on enhancing teaching and learning through the development of innovative curricula and teaching methods (Wickert *et al.*, 2021).

In any case, a clearer and more effective understanding of what constitutes impact is necessary. This need is evident within the academic community and is reflected in the association between research that is widely cited and research that drives meaningful changes in organizations and society (Alvesson & Sandberg, 2011; Gulati, 2007).

We specified elements that should be considered when evaluating impact: (a) the approach integrates theoretical impact and "provable" impact, addressing the field within its specific contexts; (b) impact should be assessed not only in the short term but also in the medium and long term, drawing inspiration from Oxford University; and (c) a focus on both products and processes, as emphasized by York University, is essential.

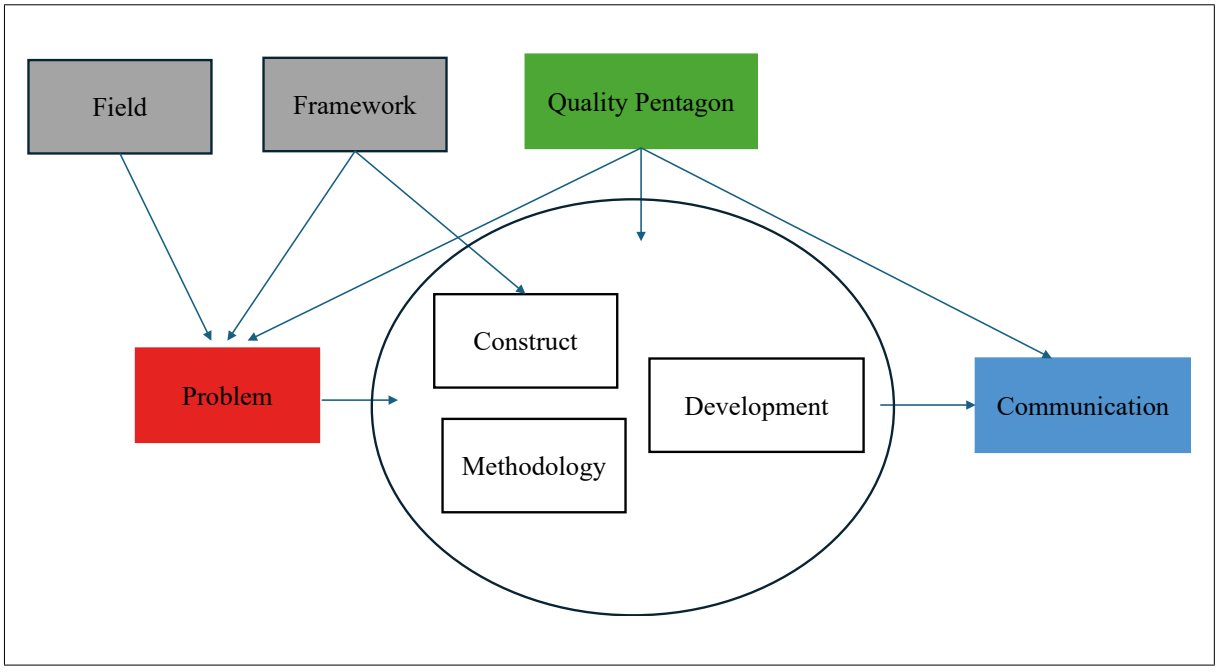
Essence: impact is the change that new knowledge brings to a community.

3 Methodological Development and Proposal Implementation

This study originated from an editorial by Frezatti (2020), which explored the quality elements of a research project and an article communicating its results. While it remains one of the most widely read pieces in the Journal of Education and Research in Accounting (REPEC, 2024), we identified a need for more uniformly accepted conceptual clarifications and practical guidance. This study is categorized as a theoretical-methodological investigation. The idea for this discussion emerged organically during meetings where we analyzed the elements of the pentagon and their application in the field. These discussions occurred at various stages, including the preparation of research projects and the drafting of articles, with a focus on conceptual exploration and their practical application in projects.

Research development in applied social sciences often begins with a deep understanding of the field and a heuristic perception aimed at generating new knowledge on a specific topic. It can also emerge from bibliographic research that explores the state of the art across various nuances, identifying gaps or areas that have yet to be addressed, evidenced, or proposed.

Once the problem is defined, the research question specifies the direction, focus, and scope of the study. From this point, the research is constructed from two perspectives: (i) the elements that ensure the **intrinsic quality** of the research, including the theoretical constructs necessary for the development of the field stage, and (ii) the operational elements that organize, test, and refine the research components, enabling effective communication of the findings upon completion (Figure 1).



Source: Developed by the authors based on the literature and the group's reflections

Figure 1. Stages of development of scientific research

Building on the preceding discussion, we provide a detailed description of the concept and properties of each attribute of the pentagon (Table 1). Additionally, we identify the key theoretical references that informed these attributes and served as inspiration for the pentagon framework.

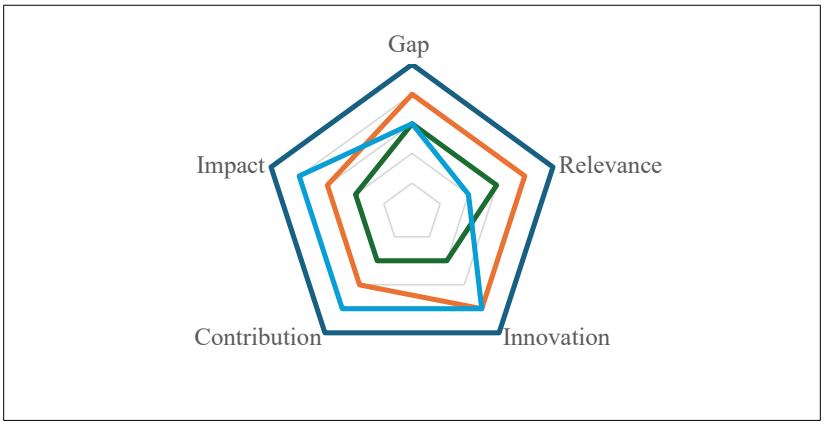
Table 1

Characterization of Pentagon Attributes

Element	Essence	Proprieties	Theoretical Framework
Gap	Something unknown or incompletely understood about a phenomenon, not addressed in the literature available in a given field, country, or abroad.	Interaction of logics; Integration of knowledge	Sandberg e Alvesson (2011)
Relevance	The degree of importance (value and usefulness) that research provides to a community.	How relevant a problem is; To whom is it relevant?	Corley and Gioia (2011), Daft and Lewin (2008), and Nicolai e Seidl (2010)
Innovation	The introduction of ideas, methodologies or discoveries that reduce or eliminate a gap.	Which part of a theoretical, empirical or methodological gap is mitigated?	Miles et al. (2011)
Contribution	New knowledge that advances the understanding and development of a field.	Theoretical and empirical	Corley and Gioia (2011)
Impact	What new knowledge changes in a community?	What changes or might change in which part of a community? What transforms the practice of various actors?	Alvesson e Sandberg (2011), Gulati, 2007) and Wickert et al. (2021)

Source: developed by the authors based on the literature and group's reflections.

The elements of the pentagon are interdependent, influencing one another; thus, any change in one element of the research invariably necessitates adjustments in the others. Additionally, the quality of research can be assessed through the vertices of the pentagon (Figure 2). The figure illustrates that research may exhibit varying strengths across the elements, and it is unlikely for all elements to reach their maximum potential simultaneously.



Source: adapted from Frezatti (2020).

Figure 2. Quality pentagon showing different configurations of the five quality attributes

We can evaluate the elements of the pentagon through a qualitative analysis presented in the following section. This analysis is guided by a rubric designed to assess the pentagon's elements in scientific research (Table 2), whether at the project stage, as a working paper, or as already published research. Similar to this study, the analysis at the research project or working paper stage aims to assess the quality of the research by considering aspects such as its theme, depth of exploration, relevance, and potential contribution. To this end, we propose three levels for evaluating each element of the pentagon. While this approach may seem straightforward, it is inherently complex due to the interconnections among these attributes within a research's argumentation and positioning.

Table 2

Analysis of the elements of the pentagon

Element	Inappropriate	Can be improved	Appropriate
Gap	Not evidenced or perceived	Existent, but is very abstract, difficult to understand or accept	Clearly understood
Relevance	Benefit or recipient of benefit is unclear	Importance is specific to a local group or context.	Relevance is clear and evident for whom it is economically and/or socially relevant
Innovation	Lack evidence of something not previously known	Innovation exists mas is minimal	Innovation and its extension are evident
Contribution	Lack of gap evidence indicates no contribution; if present, elements are misaligned.	Contribution mitigates the gap, but it persists	Contribution addresses or eliminates the gap
Impact	No evidence of impact on various segments of a community.	Potential impact exists but is generalized and unclear.	Impact is understood and perceived as broad

Source: Developed by the authors based on the literature and group's reflections.

4 Analysis of a project according to the Pentagon

Evidence of use is crucial for evaluating the usefulness of an approach and identifying its potential for action and opportunities for improvement. To this end, we developed an analysis process based on a **research project** currently under development, addressing similar research topics, and with the authors' authorization. The project excerpts are presented in tables, accompanied by reflections on each of the five elements of the pentagon.

Before presenting excerpts from the project, it is important to provide a brief contextualization of the research problem proposed in this investigation. The project discussion is based on the premise that variations in the volatility of business environments may necessitate the use of artifacts with differing complexities and applications in the planning and control process. This is particularly relevant when comparing organizations in the Anglo-Saxon environment with those in emerging countries, given the differences in their macroeconomic environments. Additionally, different phases of organizational evolution may demand different configurations of management control artifacts. Strategic planning, budgeting, forecasting, the Balanced Scorecard (BSC), and budgetary control may be used in various configurations, and the relevance of each in the management model may change depending on the stability or turbulence of the environment. The configuration refers to a set of elements that work cohesively together, and once altered, they form a new set of elements. A configuration is useful in a specific organizational context and at a particular point in time, aiming to optimize accuracy in the planning and control process, which, in turn, influences internal decision-making and management effectiveness. Changes in the external environment and the stage of organizational development can create demands for adjustments in the configuration of management control systems. The **central problem addressed in the research project concerns the accuracy of the planning and control process related to artifacts in medium and large family-owned businesses.** The following **reflective steps** will guide the analysis of each of the pentagon's elements in the context of this research project:

4.1 Gap

The first gap concerns the lack of attention to structuring diagnostic and interactive use control systems in research environments where Simons' (1995) model predominates. The model assumes the existence of artifacts that will automatically serve both diagnostic and interactive purposes, without addressing how these systems should be effectively structured. The second gap is linked to the development of management control systems (Anthony, 1965) primarily in developed countries with an Anglo-Saxon cultural context. This creates a need for adaptation when applying these models in organizations operating in emerging economies (Howorth, Rose, Hamilton, & Westhead, 2010). The expectation is that research conducted outside of this dominant axis will contribute innovative knowledge (Xu & Meyer, 2013). A key gap this study addresses is the critique of the monolithic view that what works in one environment can be simply transplanted into another. The third gap involves the lack of recognition of dynamism in organizational configurations, often viewed as stable over time and across different organizations. The assumption of equilibrium is rare, with organizations shifting between states of balance and imbalance. These periods of discontinuity disrupt stable phases, and changes typically occur episodically, driven by organizational rigidity. This raises questions about the premise of equifinality, which suggests that different forms can equally address the same situation (Meyer *et al.,* 1993), even though dynamic tensions continuously affect a company's routine activities. The fourth gap addresses the failure to identify what level of accuracy is acceptable to organizations, an issue often overlooked in research. From this perspective, the study proposes a discussion of how the configuration should be adjusted to meet these needs. Lastly, the fifth gap relates to the focus on medium and large family businesses, a sector that has been underexplored, particularly those that are not publicly listed. This represents a significant area for further research and contribution.

1. A framework that relates to the theme and supports the structuring of the project as part of the construct.
2. Identification of aspects the framework does not address in relation to the problem, considering: environment, scope, and relationship with other elements, emphasis, and customization for the target audience. The logic behind identifying the gap involves highlighting what is not yet known, but is significant and relevant to the target audience.
3. In the example, the combination of gaps includes a lack of detailed structuring of the model: (a) this gap stems from a different environment than the one we currently operate in, considering the homogeneity and development stage. It invites a discussion on whether a conceptual framework should be transplanted or adapted to new environments; (2) A lack of dynamism: the absence of dynamism in models implies that they should be periodically reviewed to remain relevant, thus contributing to their sustainability in specific contexts; (3) Equifinality: this concept acknowledges that there may be multiple valid approaches for the same situation, focusing the research on the accuracy of outcomes; (4) A robust framework of argumentation: this gap emphasizes the importance of a strong theoretical framework to facilitate understanding, especially in the context of family businesses; and (5) An emerging segment: this refers to the growing strength of research within a specific area of analysis.

4.2 Relevance

Accuracy in a stable environment may require follow-up actions to ensure that "things happen." A volatile environment, however, will also require instruments and actions to "maintain the strategic planning matters and make them a reality." In such a context, accuracy is more than "getting what will happen right," but rather "ensuring that what was decided will happen." This is the role of the mechanism (Merchant & van Stede, 2007, p. 8). Research is relevant because: i) it deals with a fundamental topic for the management and sustainability of companies, that is, the effectiveness of planning and control artifacts; and ii) it focuses on the segment of organizations that correspond to approximately 70-80% of Brazil's GDP and about which little is known about the topic.

1. Clearly identified gaps are relevant antecedents, as they can have different degrees of relevance.

2. The combination of gaps should provide an opportunity to expand relevance. Therefore, when relevance appears to be limited, returning to the gap may be an appropriate path for improvement. In the exercise presented here, the focus on family businesses opens up a range of benefits for a highly relevant portion of organizations, indicated by their participation in GDP and employment. Relevance depends on the breadth of the benefit, and something universal carries more weight than something that concerns only a specific environment. Although this may seem obvious, communication may lead to different understandings. Additionally, the theme of sustainability is to be valued, and mechanisms are required for it to be achieved.
3. In addition to determining "to whom" the research is addressed, it is necessary to determine "what purpose" it serves. In this regard, the project emphasizes that the accuracy of planning mechanisms has value and utility for companies operating in stable environments (monitoring actions) and those in more volatile environments, considering the challenge of "ensuring that what was decided will happen."
4. Thus, the relevance analysis may change when considering the following perspectives of the problem's scope: environment, scope, and relationship with other elements, emphasis, and customization for the target audience.

4.3 Innovation

An approach is innovative because, as it develops, it provides individual rewards as companies join and are accepted into the stratified sample. This approach was chosen to (i) improve the credibility of the data, (ii) enhance the image of the "research" theme among companies, and (iii) establish long-term relationships with organizations. No other published articles using this approach were found.

1. **Originality**: Assessing whether the research presents ideas, methods, or findings that are new to the field (Kuhn, 1962). The proposal for individual retribution to companies is an original innovation not found in other published studies.
2. **Significance**: Verifying the significant impact of the innovation on the field, including how it changes the understanding or approach to a problem (Popper, 1959). The proposed innovation enhances the quality and credibility of data, significantly impacting the robustness and validity of the results.
3. **Importance**: Identifying the relevance of new contributions to current challenges and their potential to open new avenues for future research (Rogers, 2003). Retribution to companies improves the research image, promotes long-term relationships, and benefits future collaborations and studies.
4. **Validation**: Ensuring that new ideas are validated through rigorous experiments or analyses, demonstrating their effectiveness and applicability (Ziman, 2000). The original methodological approach should be validated by improving the credibility and quality of data.
5. **Clarity and Complexity**: Presenting the innovation clearly and understandably, perceived as easy to use and allowing identification and application by other researchers (Fagerberg, 2005; Rogers, 2003; Dosi, 1988). The compensation methodology must be clear so that other researchers can replicate and adapt the approach.
6. **Compatibility**: Assessing the degree to which the innovation aligns with existing values, past experiences, and the needs of potential adopters. An idea incompatible with the values and norms of a social system will not be readily adopted (Rogers, 2003). Compensation must be compatible with the practices and expectations of participating companies, facilitating its acceptance and implementation.

4.4 Contribution

The study examined here contributes to the understanding of various planning and control configurations and, potentially, to improving the management model by providing insights into configurations that are more suited to organizations' needs at their respective stages. This information can be proactively integrated into the management model, enhancing assertiveness and reducing risks by anticipating and adjusting to crises, which, in turn, can lead to transformations (Greiner, 1972, 1997, 1998).

1. With clarity about innovation, the contribution can be theoretical, substantially affecting what is known and creating new opportunities, or it may be limited to empirical contributions that are more difficult to theorize but useful for a specific niche.
2. The separation and argumentation claiming the contributions should refer to what was described in the gap, relevance, and innovation. Depending on the communication vehicle, the detailing or synthesis of the contributions is emphasized. In the example presented here, the choice was to focus on synthesis.
3. The **theoretical contributions** of this example, addressed by the gaps, concern knowledge about the set of mechanisms of the control system. This indicates that the set is not uniform and can coexist with different compositions and levels of importance to meet the needs of an organization and contribute to the concept of equifinality. Additionally, the perception that the set has a dynamic rather than a permanent static perspective at a given moment offers an opportunity to understand the system's evolution. In this sense, recognizing that accuracy is important and that companies may interpret it differently is an innovation that contributes to the literature on management control systems.
4. Additionally, **practical, empirical contributions** include the specific approach to family businesses, mainly those not listed on stock exchanges but highly relevant for wealth generation in the country and which exhibit unique characteristics over time. Finally, a specific empirical contribution is that this example study focused on an environment that is rarely studied: that of emerging countries.

4.5 Impact

The knowledge provided by research in a volatile environment, such as the Brazilian one, can significantly impact organizations. Managers can be more assertive in their tasks by understanding what constitutes "normality" based on the organization's stage and identifying areas for improvement. It is known as academic or theoretical impact, which influences organizations and people indirectly. By understanding and managing organizational changes, organizations can create better operating conditions and foster growth, thereby increasing employment.
Other impacts include the practical impact on organizational managers. These professionals enhance their models and, with greater precision, achieve greater efficiency for their organizations. Additionally, there is a social impact derived from the practical impact: improved efficiency promotes economic sustainability and positively influences employment levels. Finally, an educational impact benefits students, better preparing them to face the challenges of entering the job market.

1. Typically, this is the item on the pentagon that causes the most difficulties for authors in various areas of human development, especially in the business field, as it synthesizes several highly abstract elements and possibilities.
2. Since we are in an applied social area, the indirect impact is often the most honest for the "end audience." The closer we can get to this point, the stronger the research communication becomes. For example, if we can demonstrate that the use of the diagnostic control system saves lives, the impact is stronger. However, this is unlikely; thus, we move towards an approach that shows how we affect people, who in turn save others.

3. The framework (Wickert *et al*., 2021) indicates that the various possibilities of impact should be considered, such as: i) indirect academic or theoretical impact, considering the final benefit recipient, measured mainly by the number of citations; ii) practical impact, in the professional environment; iii) social impact, which is broader and can be direct or indirect; iv) regulatory political impact, when it enhances public policies; and v) educational impact, when it improves teaching and learning.
4. The impact indicated in the example refers to promoting greater assertiveness, which, in turn, improves management. Hence, the impact is on management (organizations as targets of research sustainability) and employment (which benefits people through economic development).

As discussed in this study, the quality pentagon is a helpful and robust tool for planning and conducting research in applied social sciences, particularly in the accounting field, which is the focus of the research project that served as the basis for this discussion. It is important to emphasize that the quality pentagon is a subjective approach, and the evaluation of its five elements – gap, relevance, innovation, contribution, and impact – explored here was shaped by our worldview and biases as researchers. Therefore, the subjectivity of the pentagon analysis is inherent to the method. Each researcher and, consequently, each referee will have their own mental model for constructing the pentagon, which may differ from one author or referee to another.

Identifying research gaps allows us to focus on areas where knowledge is limited or lacking, encouraging research that meaningfully addresses these gaps. Relevance ensures that our research targets questions that truly matter to both the academic and practitioner communities, thereby enhancing the usefulness and applicability of the findings. Innovation is crucial to scientific advancement, introducing new ideas and methodologies that can transform a field of study. This study emphasized the importance of not only pursuing innovation but also rigorously validating it to ensure its effectiveness and applicability.

The contribution of a research project should be clear, substantial, and either add new knowledge or significantly expand existing theories. It is important to emphasize that both theoretical and empirical contributions are vital to the advancement of a field and should be thoughtfully discussed and defended. The impact of a research project should be evaluated not only in academic terms but also in practical, social, political, and educational dimensions. Accordingly, we propose adopting a broad perspective on impact, suggesting that research should aim to positively influence society across multiple dimensions.

The key is to analyze the elements of the pentagon in an integrated manner, taking into account the context and specific needs of the field of study in question. This approach enhances the quality of the research and simplifies the work of authors, referees, editors, and advisors alike.

5 Final (Initial) Considerations

If, by reading this discussion, you expected a straightforward script to identify the "terrorist," imprison him/her, and ensure peace of mind with years of imprisonment, we regret to inform you that this was not our intention. Even if you compile an extensive dossier with evidence of all the elements we have highlighted as crucial for promoting the intrinsic quality of research, the arguments are unlikely to be equally accepted by all judges assigned to evaluate your case. As emphasized in the third gap of the project explored here, the inherent dynamism of a research field is almost a close relative of the "terrorist." This means that the elements of the pentagon can be interpreted differently depending on the audience (different individuals), and even the same audience may conclude that an element once deemed important has lost its relevance, given the ever-changing nature of science.

The reflection we aim to encourage with this theoretical-methodological article parallels the lesson of the agent in the movie who was always late and was advised by his mentor to return to where he started. Thus, at the conclusion of this discussion—commonly referred to as final considerations in many studies—we invite all readers to revisit their initial considerations. The objective is not to provide a checklist for evaluating the quality pentagon of one or more research projects but to foster awareness of the robustness that attention to these five elements can bring to an investigation. As outlined in this study's objective, research should offer arguments to help researchers structure their projects and articles—arguments for themselves, for third parties, and for evaluators and readers to inform their analyses and reflections.

We recognize that gap, relevance, innovation, contribution, and impact may carry different weights and measures. Our aim is not to quantify them objectively but to raise awareness among accounting researchers of their existence and, more importantly, their interrelation. As emphasized in the initial considerations, when one element of the pentagon is not well developed, the potential of the others is compromised.

Note that this "movie" (discussion) will have served its purpose if, based on the reflections and provocations we presented, you were able to structure a roadmap to guide your journey. Maturing is a process that takes time, varying in pace and effectiveness for each researcher, but its ultimate goal is to simplify life—not only yours but also that of editors, authors, students, and managers, benefiting both the scientific and practical communities as a whole. Even if you have not formalized a roadmap, but instead find yourself mentally reviewing your projects and dedicating more time when structuring new ones to ensure the five elements of the pentagon are at least minimally addressed, we consider it a meaningful achievement.

Finally, the pentagon proposed here is subjective—it is not intended to feed a system capable of assigning a grade for approval or failure, but rather to serve as a framework that helps the academic community coexist with and respond to a field in constant evolution. Depending on your perspective, your intention might be to pursue and eliminate the "terrorist." We respect that, but the team behind this manuscript recommends embracing the idea that the pentagon of intrinsic research quality can take on different configurations.

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